CLAIMS

1. A method for transferring a polynucleic acid sequence from a donor vector to an acceptor vector wherein said donor vector includes a first antibiotic resistance functioning sequence and said acceptor vector includes a second antibiotic resistance functioning sequence comprising:

(a) digesting said donor vector and said acceptor vector with restriction endonucleases, which digesting releases said polynucleic acid from said donor vector and restricts said acceptor vector such that said released polynucleic acid and said restricted donor vector are capable of ligation,

(b) combining the unpurified digestion products including said released polynucleic acid and said restricted acceptor vector into a ligation reaction mixture,

(c) transforming host cells with said mixture of step (b),

(d) introducing said host cells of step (c) onto plates consisting of growth medium containing a second antibiotic to which hosts cells containing said second antibiotic resistance functioning sequence are resistant,

(e) growing distinct colonies of said host cells in the presence of a compound that changes color in the presence of the expression product of said first antibiotic resistance functioning sequence, and

(f) collecting host cells including said polynucleic acid contained in said acceptor vector from colonies that grow on said plates from step (e) and that do not exhibit a color change indicating the presence of said first antibiotic resistance functioning sequence.

2. The method of claim 1 wherein said compound is provided in said growth media.

3. The method of claim 1 wherein said compound is provided by introducing said compound onto the surface of said plate.

4. The method of Claim 1 wherein said growth medium comprises said compound and a charged polymer gelling agent which is capable of retarding the diffusion of said compound and the product of the interaction of said compound with the expression product of the first antibiotic resistance functioning sequence.

5. The method of Claim 4 wherein said charged polymer gelling agent is a polycationic polymer.

6. The method of Claim 4 wherein said charged polymer gelling agent is a polyanionic polymer.

7. The method of Claim 5 wherein said polycationic polymer is chitosan.

8. The method of Claim 5 wherein said compound includes a negative charge.

9. The method of Claim 6 wherein said compound includes a positive charge.

10. The method of claim 1 wherein said compound is a chromogenic beta lactamase substrate.

11. The method of claim 10 wherein said compound is nitrocefin.

12. The method of claim 1 wherein said acceptor vector is capable of homologous recombination with nucleic acid sequences encoding adenoviral genes to form a replication incompetent adenoviral vector.

13. The method of claim 1 wherein said first antibiotic resistance functioning sequence provides resistance to an antibiotic selected from the group consisting of β-lactam, macrolide, aminoglycoside, tetracycline, polypeptide, polyene, and nitroimidazole classes of antibiotics.

14. The method of claim 1 wherein said first antibiotic resistance functioning sequence provides resistance to ampicillin.

15. The method of claim 1 wherein said second antibiotic resistance functioning sequence provides resistance to zeocin.

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16. The method of claim 1 wherein said restriction endonucleases present in said unpurified digestion products in step (b) are inactivated.

17. A method for transferring a first library of unique polynucleic acid sequences included in a library of donor vectors into a second library including each of said unique polynucleic acid sequences in the form of an acceptor vector, wherein said donor vectors include a first antibiotic resistance functioning sequence and said acceptor vectors include a second antibiotic resistance functioning sequence, comprising:

(a) digesting each of said donor vectors of said first library and said acceptor vectors with restriction endonucleases, which digesting releases each of said polynucleic acids from said donor vectors and restricts said acceptor vector such that each of said released polynucleic acids and said restricted donor vector are capable of ligation,

(b) combining into distinct ligation reaction mixture compartments of a third library, each of the unpurified digestion product including each of said released polynucleic acids of said library and said restricted acceptor vector ,

(c) transferring each of said distinct ligation reaction mixtures into each of a multiplicity of distinct transformation compartments containing host cells and growth medium containing said second antibiotic and transforming said host cells,

(d) growing distinct colonies of said host cells in each of said compartments in the presence of a compound that changes color in the presence of the expression product of said first antibiotic resistance functioning sequence, and

(e) collecting host cells including said polynucleic acids contained in said acceptor vectors from colonies that grow in said compartments and that do not exhibit a color change indicating the presence of said first antibiotic resistance functioning sequence.

18. The method of claim 1 wherein said polynucleic acid sequence is part of a set or library of polynucleic acid sequences that are individually cloned into donor vectors.

19. The method of claim 1 wherein said method is part of an automated or high-throughput process.

20. The method of claim 1 wherein said acceptor vector is an expression vector.

21. The method of claim 1 wherein said acceptor vector is a viral expression vector.

22. The method of claim 1 wherein said acceptor vector is a retroviral vector.

23. The method of claim 1 wherein said acceptor vector is an adenoviral vector.

24. The method of claim 23 wherein said adenoviral vector is an adenoviral adapter vector which contains the left ITR and part of the E2B region, and in which the E1 region has been exchanged for a mammalian promoter, a polylinker sequence, and a polyadenylation signal.

25. The method of claim 24 wherein said adenoviral vector is pIPspAdApt10/Zeo-lacZpart as shown in Figure 5.

26. An adenoviral vector as defined in claim 25.

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